## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:

Xisheng Zhang et al.

Assignee:

Cadence Design Systems, Inc.

Title:

MOSFET Modeling for IC Design Accurate for High Frequencies

Application No.:

Unknown

Filing Date:

Herewith

Examiner:

Unknown

Group Art Unit:

Unknown

Docket No.:

BTAT.001US1

Conf. No.:

Unknown

MAIL STOP PATENT APPLICATION COMMISSIONER FOR PATENTS P.O. Box 1450 Alexandria, VA 22313-1450

## INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR § 1.97(b)

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, the documents listed on the accompanying form PTO-1449 are called to the attention of the Examiner for the above patent application. Copies of these documents are not enclosed, since they were either previously submitted in the parent Application No. 09/661,328, or cited by the Examiner in that application.

Citation of these documents shall not be construed as:

- 1. an admission that the documents are necessarily prior art with respect to the instant invention;
- 2. a representation that a search has been made a representation that a search has been made, (other than as indicated by any cited document); or

**BTAT.001US1** 

Express Mail Label No.: EV 321716094US

	3.	an	admission	that	the	information	cited	herein	1S,	or	15	considered	to	be
mater	material to patentability as defined in § 1.56(b).													
1114101	iui to pu		aomity ao ac	111100	;	, 1.50(0).								

EXPR	ESS	<b>MAIL</b>	T.A	REI.	NO:
	טטע	IVICALL	$L_{\Omega}$		$11\mathbf{V}_{\bullet}$

EV 321716094 US

Respectfully submitted,

Michael G. Cleveland

Patent Agent Reg. No. 46,030

U.S. Departm	ent of Co	ommerce, Patent a	ce	Atty Dock	et No.	Serial No	Serial No.			
		<del> </del>			M-10095 US 09/661			28		
INFO	RMATIC	ON DISCLOSUR	E STATEMENT B	Y APPLICANT	Applicant(s)					
		(Use several sh	eets if necessary)		Zhang et al.					
		·			Filing Date	Group	Group			
					September	14, 2001	2812			
			U.S.	Patent Documents						
*Examiner Initial		Document Number	Date Name		Class Subclass		Filing Date If Appropriate			
	AA									
	AB									
	AC									
*-	AD									
	AE									
	AF									
	AG									
	AH									
	AI									
	AJ									
	AK									
			Foreign	Patent Documents			•			
							Tran	slation		
		Document	Date	Country	Class	Subclass	Yes	No		
	AL									
	AM									
	AN									
	AO									
	AP			·						
		OTHER	ART (Including A	uthor, Title, Date, Perti	nent Pages, Et	c.)				
	AQ	X. Jin, "An Effo Papers IEDM-93	ective Gate resistan 3, December 1998,	ice Model for CMOS R pages 961-9694.	F and Noise M	odeling", Dige	st of Techni	cal		
,	AR	S.F. Tin et al., "A Simple Subcircuit Extension of the BSIM3V3 Model of CMOS RF Design," IEEE Journal of Solid –State Circuits, Vol. 35, No. 4, April 2000, pp. 612 623.						E		
	AS	W. Liu et al., "R Emphasis on BS 309-312.	F MOSFET Mode IM3V3 SPICE Mo	ling Accounting for Disdel", Digest of Technic	stributed Substral Papers IEDI	rate and Chann M-97, December	el Resistance er 1997, pag	e with		
Examiner			Date Considered	d						
*EXAMINER: citation if not in	Initial in conform	f reference considerance and not con	ered, whether or no sidered. Include co	ot citation is in conformation of this form with yo	ance with MPE our communica	EP 609; Draw lition to applica	ne through nt.			

U.S. Departm	ent of Co	mmerce, Patent and	Atty Dock	et No.	Serial No.					
					M-10095 U	JS	09/661,32	28		
INFO	RMATIC	ON DISCLOSURE	STATEMENT BY	APPLICANT	Applicant(	Applicant(s)				
		(Use several shee	ets if necessary)		Zhang et a	Zhang et al.				
					Filing Date	2	Group			
					September	14, 2001	2812			
			U.S. Pa	tent Documents						
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing D			
	AA					Justines	A A A P P P P P P P P P P P P P P P P P	J. i.e.		
	AB					· ·				
	AC									
	AD			•						
	AE									
	AF									
	AG									
	AH									
	AI									
	AJ									
	AK									
			Foreign P	Patent Documents						
	<del></del>						Trans	slation		
	ļ	Document	Date	Country	Class	Subclass	Yes	No		
	AL			<del></del>						
	AM									
	AN									
	AO									
	AP									
	<u></u>			thor, Title, Date, Pertir		<u> </u>				
	AQ	S.H. Jen et al., "A Transactions on F	ccurate Modeling a	and Parameter Extracti Vol. 46, No. 11, Nove	ion of MOS Tr mber 1999, pr	cansistors up to 5. 2217-2227.	10 GHz," IE	EE		
•	AR	C. Enz et al., "MC Vol. 35, No. 2, Fe	OS Transistor Mode ebruary 2000, pp. 18	eling for RF IC Design 86-2001	," IEEE Trans	actions on Solid	1-State Circu	uit,		
	AS	M.E. Mokari et al Transactions on C September 1992,	Circuits and Systems	of Noise Parameter Cas-1: Fundamental Theo	alculation Usin	ng Direct Matrix cations, Vol. 39,	Analysis," No. 9,	IEEE		
Examiner	•		Date Considered							
*EXAMINER citation if not i	Initial in	f reference consider nance and not consi	ed, whether or not of idered. Include cop	citation is in conforma by of this form with yo	nnce with MPI our communica	EP 609; Draw lination to applican	ne through it.			

U.S. Departm	ent of Co	mmerce, Patent and	d Trademark Office		Atty Dock	et No.	Serial No.			
					M-10095 I	M-10095 US 09/661,328				
INFO	RMATIC	ON DISCLOSURE	STATEMENT BY	APPLICANT	Applicant(	Applicant(s)				
		(Use several she	eets if necessary)		Zhang et a	Zhang et al.				
					Filing Date	e	Group			
					September	14, 2001	2812	- +		
			U.S. Pa	tent Documents				7		
*Examiner Initial		Document Number	Data	Nama	Class	Cultalana		Filing Date If Appropriate		
IIIIIIai	AA	Number	Date	Name	Class	Subclass	II Approj	onate		
	AB		++	<del></del>						
	AC									
	AD		+							
	AE		+							
	AF		+							
	AG		+							
	AH									
	AI									
	AJ		1							
	AK									
	<u></u>	<u> </u>	Foreign P	Patent Documents						
							Tran	slation		
	<b>T</b>	Document	Date	Country	Class	Subclass	Yes	No		
	AL									
	AM							<b>†</b>		
	AN									
	AO		,							
	AP			The same body			- <del></del>			
	,-I	OTHER	ART (Including Aut	thor, Title, Date, Perti	inent Pages, Et	tc.)		1		
	AQ			iversal Estimation of nference on Microele				06-		
	AR	C.C. Su et al., "A pp. 214-217.	Monolithic 2.4 GH	Iz CMOS Active Bala	anced Circuit,"	IEEE, Vol. 2, N	lovember 19	999,		
	AS	K. H. Kim et al., Circuits," IEEE 7 pp. 183-189.	"Full Software Anal Fransactions on Com	lysis and Impedance Inponents and Packagi	Matching of Raing Technologi	adio Frequency ies, Vol. 23, No.	CMOS Inte 1, March 2	grated 000,		
Examiner			Date Considered							
*EXAMINER citation if not i	: Initial i	f reference conside mance and not cons	red, whether or not or sidered. Include cop	citation is in conform by of this form with yo	ance with MPI our communic	EP 609; Draw lisation to applicat	ne through nt.			

U.S. Departme	ent of Co	mmerce, Patent an		Atty Dock	et No.	Serial No.				
					M-10095 U	JS	09/661,328			
INFO	RMATIC	ON DISCLOSURE	STATEMENT BY	APPLICANT	Applicant(s)					
		(Use several she	ets if necessary)		Zhang et al.					
					Filing Date	2	Group			
					September	14, 2001	2812			
			U.S. Pat	ent Documents			<del>1</del>			
*Examiner		Document					Filing Date			
Initial	<del> </del>	Number	Date	Name	Class	Subclass	If Approp	oriate		
	AA		-							
·	AB			****		<del> </del>		_		
	AC									
	AD					<del>1-1</del>				
	AE									
<del></del>	AF									
	AG									
	AH									
	AI									
	AJ									
	AK									
			Foreign Pa	atent Documents						
							Trans	slation		
		Document	Date	Country	Class	Subclass	Yes ·	No		
	AL									
	AM									
	AN									
	AO									
	AP									
		OTHER	ART (Including Aut	hor, Title, Date, Pert	inent Pages, Et	c.)				
	AQ	Level Metalization	on Using Time Doma December 5, 1999,	of Crosstalk-Induce ain Reflectometry an	d Noise for 0.1 d S. Parameter	8μM CMOS To s," IEEE: Intern	echnology w national Elec	ith 6-		
	AR	J. J. Ou et al., "S	ubmicron CMOS Th	ermal Noise Modelir nical Papers, 1999, p		Perspective," I	EEE Sympos	ium		
	AS		S Technology," IEE	valent Circuit Modeli MTT-S International						
Examiner	•	<u>, , , or, 1, pp. 33-30</u>	Date Considered					$\neg \uparrow$		
				citation is in conform y of this form with y						

U.S. Departm	ent of Co	mmerce, Patent and	Atty Dock	et No.	Serial No.					
					M-10095	M-10095 US 09/661,328				
INFC	RMATIC	ON DISCLOSURE	STATEMENT BY	APPLICANT	Applicant(s)					
		(Use several she	ets if necessary)		Zhang et al.					
					Filing Date	e	Group			
					September	14, 2001	2812			
			U.S. Par	tent Documents						
*Examiner Initial		Document Number	Date Name		Class	Subclass	Filing Date If Appropriate			
	AA			·						
	AB					,_				
	AC									
	AD									
	AE									
	AF									
	AG									
	AH									
	AI									
	AJ					-				
	AK									
		J	Foreign P	atent Documents			1			
		T-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	•				Tran	slation		
		Document	Date	Country	Class	Subclass	Yes	No		
	AL							1		
	AM									
	AN									
	AO									
	AP									
	-1	OTHER	ART (Including Aut	hor, Title, Date, Pert	tinent Pages, Et	c.)	<u> </u>	L		
	AQ		'CMOS Technology nits, Vol. 34, No. 3, p	Characterization for op.268-276.	· Analog and RI	F Design," IEE	E Journal of			
	AR		'CMOS Technology its Conference, 1998	Characterization for pp. 3.1.1-3.1.8.	· Analog and RI	F Design," IEE	E Custom	****		
	AS	Semiconductor F	ield Effects Transist	ts on the Scattering of tors," Journal of Vacues, Vol. 16, No. 2, pp	uum Science an			de-		
Examiner			Date Considered			:				
				citation is in conform by of this form with y						

U.S. Departm	ent of Co	mmerce, Patent an		Atty Dock	et No.	Serial No.			
					M-10095 US 09/661,328				
INFO	)RMATI(	ON DISCLOSURE	STATEMENT BY	APPLICANT	Applicant(s)				
		(Use several she	eets if necessary)		Zhang et al.				
					Filing Date	2	Group		
					September	14, 2001	2812		
			U.S. Pa	tent Documents					
*Examiner Initial		Document Number	1		Class	Subclass	Filing I		
	AA			Name				<u>F</u>	
	AB								
	AC								
	AD								
	AF								
	AF								
	AG								
	AH					1			
	AI								
	AJ								
	AK								
	<b>-</b>		Foreign P	atent Documents	——————————————————————————————————————		1	-	
							Tran	slation	
		Document	Date	Country	Class	Subclass	Yes	No	
	AL			•					
	AM								
	AN								
	AO								
	AP								
		OTHER	ART (Including Aut	hor, Title, Date, Pert	inent Pages, Et	c.)			
	AQ			a MOSFET Model fon notice in the second seco			i," 1997 IEE	Έ	
	AR	Jin-Young Choi Transistors," Jou 248.	et al., " Effects of Su rnal of Electrical En	bstrate Resistance or gineering and Inform	n Microwave C nation Science,	haracteristics of 1999, Volume	f MOS 4, No. 2, pp	. 244-	
	AS	Jin-Young Choi,		f MOS Transistors for, Vol. 36-D, No. 5, p		ons," Journal o	f the Institut	te of	
Examiner		.,	Date Considered						
*EXAMINER			ered, whether or not	citation is in conform y of this form with y					

U.S. Departm	ent of Co	mmerce, Patent and	Atty Dock	et No.	Serial No	Serial No.				
					M-10095 U	M-10095 US				
INFC	RMATIC	ON DISCLOSURE	STATEMENT BY	APPLICANT	Applicant(s)					
	<u>-</u>	(Use several she	ets if necessary)		Zhang et al.					
					Filing Date	Group	Group			
					September	14, 2001	2812			
			· U.S. Pat	ent Documents						
*Examiner Initial		Document Number	Data	Name	Class	Subclass		ing Date		
inuai	AA	Number	Date	Ivame	Class	Subclass	If Appro	рпате		
	AB									
	AC		1	· · · · · · · · · · · · · · · · · · ·						
	AD		-	_,			-			
	AE									
	AE		1							
	AG									
	АН									
	AI									
	AJ									
	AK			78-0-1-1						
		<u> </u>	Foreign P	atent Documents						
							Tran	slation		
		Document	Date	Country	Class	Subclass	Yes	No		
	AL									
	. AM									
	AN		•							
	AO									
	AP									
		OTHER	ART (Including Aut	hor, Title, Date, Pert	inent Pages, Et	c.)				
	AQ			SFET Model-User's 2000, pp. 1.1-13.14.		Berkeley-Depar	tment of Ele	ctrical		
	AR	Hewlett-Packard Measurements,"		7-1, "Fundamentals o	of RF and Micro	owave Noise Fi	igure			
	AS		age et al., "Simulation Chapter 10, pp. 285-3	on of Nonlinear Circu 314.	uits," <u>Electroni</u>	Circuit and Sy	ystem Simul	ation		
Examiner	<u>.J</u>	<u> </u>	Date Considered							
			red, whether or not o	citation is in conform y of this form with y						